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# Plant Poisoning Of Livestock

*Ray D. Hatch and A. B. Massey*

ONE of the most difficult problems of the practicing veterinarian is the diagnosis of toxic symptoms due to poisonous plants. Some plants produce in animals symptoms quite similar to those indicative of an infectious or non-infectious disease. Consequently, the diagnosis of plant poisoning apart from pathological conditions from other causes may be difficult.

Diagnosis, while not imperative to treatment, is absolutely essential if adequate control measures are to be instituted. Treatment of the affected animal is symptomatic, but prevention depends upon eradication of the offending plant or plants.

## Seasons

The majority of poisonings occur during the winter and early spring. During these seasons, there is often a scarcity of green feed and animals are likely to eat anything green. Evergreen plants and shrubs that are ordinarily unpalatable and distasteful may be eaten at this time, but at no other time during the year unless drought conditions develop. During the early spring growing period, many toxic plants develop tender shoots which are readily eaten. Summer and fall poisonings are usually associated with adverse pasture conditions, and drought and infertile soil cause a deficiency of grass and promote weed growth.

Most of the plants capable of causing trouble can be grouped according to the season of the year during which they are most dangerous. There is naturally much

overlapping from one season to another but a general division can be made.

The type of plant varies greatly from one area to another and with variations in topography. This brief discussion will attempt to mention only the plants occurring commonly in a wide range of states. The authors are fully aware that many plants not discussed are quite prevalent in some areas.

## Winter Months

The major difficulties during the winter months are due to consumption of foliage of evergreen plants or shrubs. Such common ornamental plants as rhododendron, mountain laurel, and boxwood are frequently browsed when all other feed is insufficient. In areas where Scotch broom is prevalent, animals may eat the green stems in search of feed.

During the winter months, the veterinarian is frequently called upon to diagnose conditions that may be confused with plant poisoning, but are actually acute parasitism or in many cases simple starvation. It is extremely difficult to convince a client that an abundance of coarse stems and wood stalks is not sufficient feed for his animals, and that during relatively mild winters when pasture growth is good until late in the fall such roughage may be barely adequate. Where management practices permit, the feeding of ample hay is generally sufficient to prevent this type of poisoning.

Most of these plants, if present and causing difficulty, will be found in rough wooded areas or around yards and buildings. Indication of browsing by eating of

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leaves can be taken as evidence of poisoning by this type of plant. The symptoms are usually chronic—that is, lasting for several days—and there is nearly always a digestive disturbance of some type. Boxwood is the one possible exception, in which case extreme depression is a prominent symptom.

Treatment, as previously stated, must be primarily symptomatic. Circulatory and respiratory stimulants are usually necessary, occasionally nerve sedatives must be used. Gastric and intestinal sedatives or mild laxatives should be used to counteract such digestive disturbances as may be present..

### Spring

During the early spring months when pastures are just coming in, animals are likely to graze more closely and more greedily than later on in the season. By such close grazing, many plants not ordinarily palatable are accidentally ingested.

Poison hemlock and water hemlock are two of the most common and most toxic of plants in this group. They are frequently and erroneously called "wild parsnip" or "wild carrot." Both of these plants grow in moist areas; water hemlock is frequently found on the edge of a creek. Animals eating poison hemlock leaves have been known to die within fifteen minutes. The root of the water hemlock is the most toxic part of the plant. Consumption of the root may likewise cause fatal poisoning in a few minutes. Treatment is rarely possible in these cases, as these plants produce acute poisoning. Nerve and heart sedatives may be of value if administered early. These plants must be dug up and burned if the poisoning is to be prevented. They grow in moist or wet places; a small sunken area around a spring or tile opening will support enough to kill many animals.

### Cocklebur

The lowly cocklebur may be responsible for the death of many pigs. In this instance, the freshly sprouted seed is most toxic. The sprouts are likely to be eaten by pigs should they root among sprouting seed. As the plant grows, it loses much of

its toxicity and becomes less palatable so that by the time sheep and cattle can graze the leaves they are much less harmful. Treatment consists mainly of heart stimulation and external heat to prevent shock. Purgation to eliminate any of the glucoside causing the toxemia is also advisable.

Two common wild flowers, larkspur and dutchman's breeches, are occasionally responsible for some poisonings. The native larkspur or delphinium, especially the dwarf species, may be the cause of acute poisoning. The garden species are also poisonous. These sometimes become naturalized in pastures or hay fields, and may be a source of trouble. Dutchman's breeches occurs on moist, shaded, wooded slopes. The young leaves are lush and tender. These plants usually cause marked nervous symptoms, excitability and trembling. Occasionally muscular spasm is noted. Death usually results from diaphragmatic paralysis. Treatment of the nervous symptoms by the use of mild sedatives and hypnotics is always advisable.

The buttercups may also be troublesome. The leaves of these plants contain an oil that causes irritation of the mucosa of the mouth, vesication being common. Because of a sore mouth, the animal refuses to eat and may become weak and depressed. In this instance stimulation is indicated and if the animals will eat they are rarely seriously affected.

### Summer

In the summer during good growing weather there is generally little difficulty from poisonius plants. The hemlocks remain a hazard and animals may eat some of them by mistake while grazing grasses. Those grasses and other plants which produce hydrocyanic acid (called the cyanogenetic plants) are important sources of poisoning in the summer.

With the cyanogenetic plants, as with hemlocks, death is frequently so rapid that no treatment can be applied. Animals showing mild or early symptoms may be treated successfully at times by intravenous administration of sodium thiosulfate or sodium nitrate or by glu-

cose and hydrogen peroxide orally. These materials neutralize the hydrocyanic acid combined with hemoglobin and inhibit the release of the acid in the stomach. These plants are of major importance in the health of cattle and sheep. Generally, cyanogenetic plants are more poisonous when their normal growth or activity has been affected by adverse conditions. Johnson grass, sudan grass, and the sorghums are among the more important cyanogenetic grasses. Second growth, in late summer, from Johnson grass or sorghum stubble is especially dangerous. Freshly wilted leaves of wild cherry are likewise highly poisonous.

### **Legumes**

There is some evidence that many of the legumes, alfalfa and crimson clover especially, are also capable of producing poisoning very much like cyanide when young growth is grazed while covered with frost in the early morning. In a number of instances animals have died within a few minutes after being turned on frosted pastures and post mortem examinations have revealed pathological changes typical of cyanide poisoning.

Wilted leaves from oak and hickory trees are occasionally responsible for poisoning. Numerous instances are reported in which animals, known to have eaten leaves from branches blown down or trimmed off, have been poisoned. In these cases, depression, constipation and rumen-atony are the common symptoms.

### **Plant Toxemias**

In the control of plant toxemias or for-are poisonings, as in the control of infectious diseases, prevention is of paramount importance, and treatment is entirely secondary. Any plant known to be toxic should be pulled or dug up and burned, or disposed of in such a way that animals cannot consume it. Cuttings from shrubs and flower beds should not be thrown in pastures or barn lots. Limbs trimmed from trees should be piled where animals do not have access to them. Sprouts from the stumps of some trees may cause poisoning and should be destroyed as soon as noticed. Locust posts

are the cause of some reaction in animals; the fresh inner bark contains a toxic substance noted when eaten by animals.

Areas known to contain poisonous plants may be fenced until the plants can be removed and destroyed, or until the plants are no longer a source of trouble. Fence rows should be cleared of suspicious weeds and woody plants; however, one should remember that a fence row free of plant growth is likely to wash badly. Fertilization and proper management of seeding permanent pastures can be a great aid in controlling poisonous plants and many of the weed pests. A dense sod of grass will crowd out other plants and insure healthier, better fed stock.

The veterinarian must always bear in mind that poor growing seasons and adverse weather conditions increase the hazards of plant poisoning. As has been indicated, many plants are more toxic under conditions of poor growth, wilt, frosting, or second growth than during normal development.

### **Location of Plants**

When looking for poisonous plants in pastures, bear in mind that most of these are not commonly found in open pasture. They occur in fence rows, along the banks of streams, in marshy places in woods or woodland borders where grasses are infrequent. Search places across pasture fences where the animals have not tramped down the vegetation.

By careful cropping procedures and by supplementing the feed when necessary and by clearing out and destroying plants known to cause trouble, most of the plant poisonings can be avoided.

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Stirring liquids without having a rod going into the liquid from outside is now accomplished by a new motor driven stirring device. A bar magnet, covered with glass or plastic, is placed at the bottom of the container. A small motor under the container rotates a permanent magnet on the end of the shaft, and the magnet in the liquid follows the other magnet around, stirring the liquid.